

Notice of Allowability

Application No.

10/766,946

Examiner

Mitchell R. Slavitt

Applicant(s)

PARK ET AL.

Art Unit

2627

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to an amendment filed 5/30/06.
2. ☒ The allowed claim(s) is/are 1-34.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☒ All b) ☐ Some* c) ☐ None of the:
 1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit
of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413),
Paper No./Mail Date _____
7. ☒ Examiner's Amendment/Comment
8. ☐ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____

EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Kari P. Footland on 8/16/06.

Claims 5, 10, 15, and 20, following equations, after the word "wherein", insert – K_a – . Following the word "denote" insert – an acceleration constant, $-$.

Reasons for Allowance

2. Claims 1-34 are allowed as the prior art does not teach or suggest the applicant's invention.

Independent claim 1 teaches a method of controlling a track seek servo. The distinguishing element of the claim is: moving the transducer to a space over a target track of a plurality of tracks according to a track seek controlling process in which an asymmetrical sine wave acceleration trajectory $a(t)$ is used in a track seek mode.

Independent claim 5 teaches a method of controlling a track seek servo. The distinguishing elements of the claim are: the equations set forth in the claim for the asymmetrical sine wave acceleration trajectory $a(t)$, velocity trajectory $v(t)$, and a position trajectory $x(t)$, that are based on the acceleration trajectory $a(t)$.

Independent claim 11 teaches a disk drive. The distinguishing element of the claim is: a controller controlling the actuator to move the transducer from a space over a

Art Unit: 2627

present track of the plurality of tracks to a space over a target track of the plurality of tracks using an asymmetrical sine wave acceleration trajectory $a(t)$.

Independent claim 15 teaches a disk drive. The distinguishing element of the claim is: a controller controlling the actuator to move the transducer from a space over a present track of the plurality of tracks to a space over a target track of the plurality of tracks using an asymmetrical sine wave acceleration trajectory; wherein the asymmetrical sine wave acceleration trajectory, and a velocity trajectory, and a position trajectory based on the acceleration trajectory, are given by the equations for $a(t)$, $v(t)$, and $x(t)$ as stated in the claim.

Independent claim 16 teaches a computer-readable storage. The distinguishing element of the claim is: a process a controller controlling the actuator to move the transducer from a space over a present track of the plurality of tracks to a space over a target track of the plurality of tracks using an asymmetrical sine wave acceleration trajectory.

Independent claim 20 teaches a computer-readable storage. The distinguishing elements of the claim is: a process of moving a transducer to a space over a target track of the plurality of tracks according to a track seek controlling process in which an asymmetrical sine wave acceleration trajectory $a(t)$ is used in a track mode; and obtaining the asymmetrical sine wave acceleration trajectory, and a velocity trajectory, and a position trajectory, that are based on the acceleration trajectory whereby the equations for $a(t)$, $v(t)$, and $x(t)$ are stated in the claim.

Independent claim 21 teaches a method of controlling a track seek servo of a disk drive having a transducer, a voice coil, and a disk with a plurality of tracks. The distinguishing element of the claim is: an asymmetrical sine wave current is applied to the voice coil in a track seek mode.

Independent claim 25 teaches a disk drive. The distinguishing element of the claim is: a controller controlling the actuator to move the transducer from a space over a present track of the plurality of tracks to a space over a target track of the plurality of tracks by applying an asymmetrical sine wave current to the voice coil.

Independent claim 29 teaches a computer-readable storage controlling a computer. The distinguishing element of the claim is: an asymmetrical sine wave current is applied to the voice coil in a track seek mode.

Independent claim 34 teaches an electrical system controlling a hard disk drive. The distinguishing element of the claim is: a controller controlling movement of the transducer from a current one of the tracks to a target one of the tracks using an asymmetrical sine wave acceleration trajectory.

The reason for allowance of independent claim 6 was provided in the prior Office Action.

Conclusion

3. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mitchell R. Slavitt whose telephone number is (571) 272-7562. The examiner can normally be reached on M-F (8:00-4:30).

Art Unit: 2627

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hoa T. Nguyen can be reached on 571-272-7579. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

MS m
8/16/06

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8/21/06